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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/397,952	09/17/99	AHMAD	A MICRON.061DV
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EXAMINER

RAULS
ART UNIT PAPER NUMBER

2814  
DATE MAILED:  
10/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Application No.

09/397,952

Applicant(s)

AHMAD, AFTAB

Examiner

Steven H. Rao

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-15 and 23-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1,3-15 and 23-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10. 6) ☐ Other: \_\_\_\_\_

***R s p o n s   t o   A m e n d m e n t***

Applicants' request for a RCE the amendment enclosed therewith filed July 20, 2001 has been entered on July 27, 2001.

Therefore claims 1, 3 and 23 as amended by the amendment of July 20, 2001 claim 15 as recited in the amendment of November 03, 2000 and claims 4-14 24-28 as originally filed are currently pending in the application.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-15 and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmad et al. ( U.S. Patent No. 5,405,791, hereinafter Ahmad) as previously applied and further in view of Gardner et al. ( U.S. Patent No. 5,994,175, herein after Gardner ).

With respect to claims 1 and 15 Ahmad describes a method of forming a gate structure on a semiconductor substrate including : All steps recited in the Office Actions of 8/20/00 ( Paper No.4) and 1/18/01 ( Paper No. 6).

It is noted that claim 1 recites an insulator element region without specifying the formation of the nitrogen –rich region, however the remarks section appear to deal with all independent claims as a group.

Ahmad does not specifically teach implanting Nitrogen Atoms.

However, Gardner in its abstract lines 2, etc. describes nitrogen implant into n-channel regions to reduce the spreading of the source/drain impurity distributions

thereby decreasing the junction depth and increasing the sheet resistance of the source/drain regions.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Gardner's Nitrogen implant ( along with Fluorine, Si,Ge or Arsenic) in Ahmad's process describing an arsenic implant to reduce the spreading of the source/drain impurity distributions thereby decreasing the junction depth and increasing the sheet resistance of the source/drain regions. ( Ahmad Abstract lines 4-6).

Dependent claims 2-12, 14 and 24-28 were said to be allowable because they dependent from allegedly allowable independent claims.

However as shown above the independent claims are not allowable therefore claims 2-12, 14 and 24-28 are also rejected for the reasons setout in the previous office actions and further in view of the above discussion.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-15and 23-28 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Steven H. Rao at telephone number 703-306-5945.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703- 306-2794. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-308-7722  
for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or  
proceeding should be directed to the receptionist whose telephone number is 703- 308-  
0956.

SK  
10/06/01

  
Olik Chaudhuri  
Supervisory Patent Examiner  
Technology Center 2800